Trend Study 1-6-01

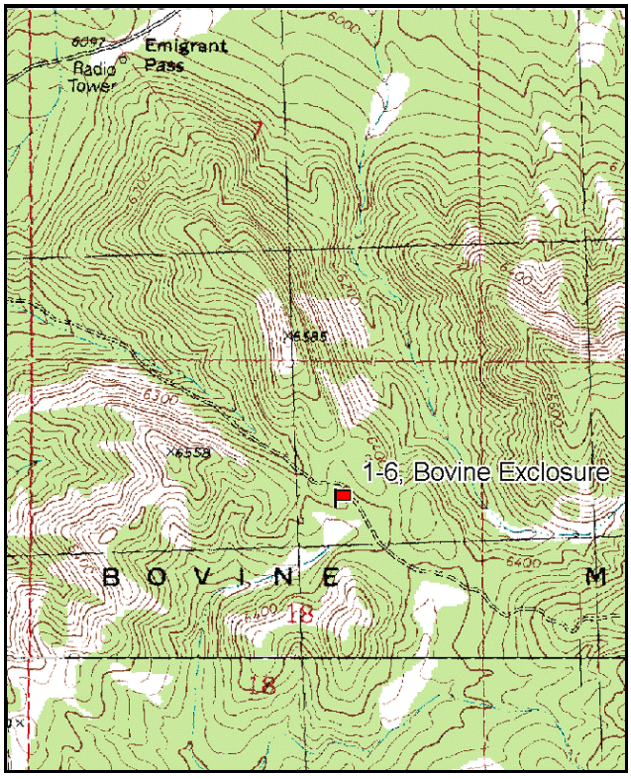
Study site name: Bovine Exclosure . Vegetation type: Big Sagebrush .

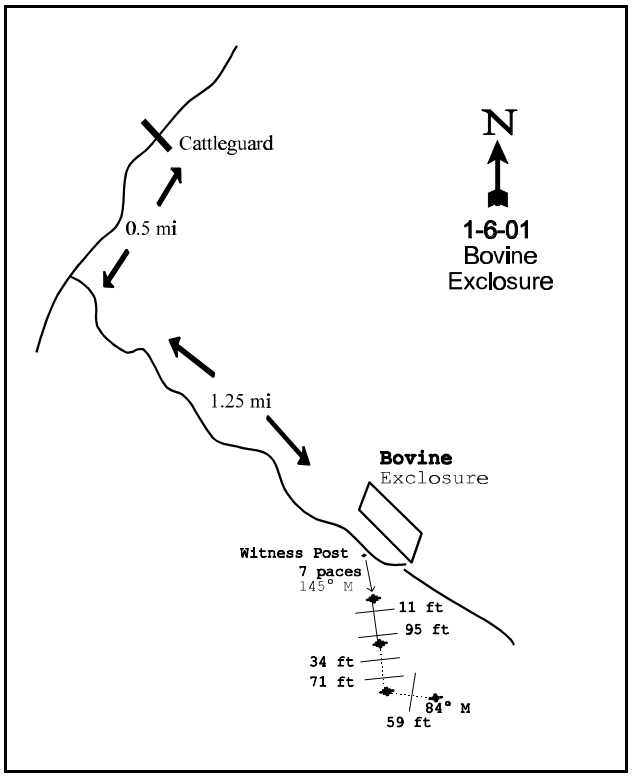
Compass bearing: frequency baseline 165 degrees magnetic.

Frequency belt placement: line 1 (11 & 95ft), line 2 (34 & 71ft), line 3 (59ft). Rebar: belt 4 on 13 ft.

LOCATION DESCRIPTION

Proceed southwest to the summit of Emigrant Pass on Emigrant Pass Road. From the cattleguard at the summit, continue south 0.5 miles to a fork and turn left. Travel 1.25 miles on this road to the Bovine Exclosure where there is a witness post on the right side of the road. From the witness post, follow an azimuth of 145 degrees magnetic for 7 paces to the 0-foot stake of the baseline marked with browse tag #7909. The bearing of the baseline is 165 degrees magnetic. Line 3 changes direction to 59 degrees magnetic.





Map Name: Emigrant Pass Diagrammatic Sketch

Township 9N , Range 16W , Section 18 UTM 4598188 N, 273130 E

DISCUSSION

Trend Study No. 1-6

The Bovine Exclosure trend study is located immediately adjacent (south) to the Bovine exclosure. Although at a relatively high elevation (6,400 ft.), the study site receives substantial deer use during all but the most severe winters. During the winter of 1983-84, two and a half to three feet of snow covered the area and deer were unable to use the area in midwinter. However, during most years, the area is available and is considered critical deer winter range. A pellet-group transect read on the site in 2001 estimated light use with 20 deer days use/acre (50 deer days use/ha). The site is located in a small "saddle" and thus has only a 5% to 10% percent east-southeast facing slope. Much of the surrounding area is steeper. The range type is sagebrush-grass with scattered or open juniper-pinyon woodland. Point-quarter data from 2001 estimated Utah juniper density at 87 trees/acre and single-leaf pinyon at 27 trees/acre. This area is in the White Lakes sheep allotment which is grazed by 1,5000 sheep from December 1 through March 31.

Soil is loose and coarse textured but apparently quite deep, especially on the more level areas. Soil texture is a loam to clay loam with a soil reaction that is slightly alkaline (7.8 pH). On steeper areas, erosion has resulted in more shallow soils with a lot of exposed rock. Effective rooting depth averages 22 to 24 inches along the original baseline. Two additional 100 foot baselines were added in 1996 to increase the sample size. These two baselines are on more shallow soils averaging only 12 to 13 inches in depth. Surface rock cover is also greater. The parent material appears to be granite, which must contain some subsurface fractures because there are some basin big sagebrush growing on these more shallow soils. Ground cover is fair for perennial grasses and litter. Erosion is not currently a problem with the erosion condition class rated as stable in 2001.

The key browse species, basin big sagebrush provides 39% of the total browse cover. The density has continually decreased since 1990 (3,199 plants/acre to 1,900 plants/acre) and 40% of the population is currently (‘01) classified as dead. Forage production for this sagebrush type was estimated at 2,010 pounds per acre (air dry) with the 1970 range inventory. Extremely heavy vole damage during the 1983-84 winter, killed most of the big sagebrush and bitterbrush within the area. Other shrubs which include: black sagebrush, rubber rabbitbrush, stickyleaf low rabbitbrush, and Utah juniper experienced considerably less rodent damage. Under more normal circumstances, shrub density, especially that of the more preferred species would be higher. The surviving basin big sagebrush sampled in 1984 were generally in poor vigor with 63% of the population classified as decadent. Decadency was primarily from rodent damage at that time. Browsing by deer was moderate with 20% of the plants heavy utilized. Utilization has been mostly light to moderate since 1990, with percent decadency at much lower percentages. Vigor has been good on all but a few decadent plants. During the 1996 reading, dead plants were included in the shrub counts. The percentage of dead plants within the population has remained at about 40 to 45%. This data provides an idea as to the extent of the 1983-84 die-off. Many of the decadent and dying sagebrush encountered in 1996 and 2001 appeared to be a result of periods of drought since the late 1980's.

With the extended base line used in 1996, more black sagebrush and bitterbrush were picked up in the sample. Currently (‘01) there are an estimated 1,220 black sagebrush plants/acre which are lightly hedged and in good vigor. Bitterbrush number about 220 plants/acre with 18% displaying heavy use. Percent decadency of these shrubs is now down to 9% and vigor is good.

It was feared that the widespread die off would provide an opportunity for less desirable shrubs such as broom snakeweed and narrowleaf low rabbitbrush to increase. Narrowleaf low rabbitbrush has remained fairly stable since 1984 and broom snakeweed, first sampled in 1996, numbered only 520 plants/acre in 2001. Observations from the nearby livestock exclosure also show a basin big sagebrush die-off. Both the total exclosure and the livestock exclosure show dead and dying plants. Use of the sagebrush in the livestock

exclosure was light to moderate while the bitterbrush had a clubbed growth form indicating heavy use.

The herbaceous understory was dominated by native grasses, primarily bluebunch wheatgrass and Sandberg bluegrass in 1996. Now that has changed to where perennial grasses only make up 56% of the grass cover where earlier it was at 83%. Annual cheatgrass is becoming more abundant. It has continually increased to where it now contributes 44% of the total grass cover. Forb composition features several large showy species and a variety of lower growing forms. Overall forb composition and density are above the average for most juniper-pinyon sites in this area. Important forbs include: arrowleaf balsamroot, tapertip hawksbeard, two large *Lomatium* species, and at least two kinds of milkvetch.

1984 APPARENT TREND ASSESSMENT

Soil trend appears stable even though there are numerous patches of bare ground and erosion pavement. The interspersed herbaceous cover and litter accumulations have acted to prevent serious erosion. The gentle slope is also a mitigating factor. Vegetative trend appears down primarily because of widespread rodent damage to the most important browse species. Whether there will be any recovery will become apparent within the next few years. However, herbaceous density appears to be high enough to offer some competition to developing shrub seedlings.

1990 TREND ASSESSMENT

Trend for soil is stable. Percent bare ground increased slightly while litter cover declined. However, basal vegetative cover nearly doubled and erosion is not a problem on this site. Trend for browse is up. Density of big sagebrush increased since 1984 from 1,532 to 3,199. Percent decadency has declined from 63% in 1984, to 23% in 1990. Seedlings and young plants are abundant and the population appears to be increasing. Hedging is light on the available shrubs and sagebrush canopy cover averages 11%. The point-quarter data estimated 77 junipers per acre, 67% mature trees. The grass component, mainly bluebunch wheatgrass and Sandberg bluegrass, increased significantly in nested frequency, while thickspike wheatgrass decreased significantly during this same period.

TREND ASSESSMENT
soil - stable (3)
browse - up (5)
herbaceous understory - up (5)

1996 TREND ASSESSMENT

Trend for soil continues to be stable. Litter cover declined but percent bare ground also went down from 26% to 15%. Trend for browse is stable. Density estimates are similar for mature and decadent plants compared to 1990 data. The number of seedlings and young declined considerably but there are still enough to maintain the population. Use is currently light to moderate and percent decadency slightly higher at 27%. Trend for the herbaceous understory is slightly down. Sum of nested frequency of perennial grasses and forbs declined slightly since 1990. Sum of nested frequency for bluebunch wheatgrass declined significantly while frequency of Sandberg bluegrass remained the same. Three of the forb species encountered in 1990 declined significantly in nested frequency. Since 1984, forb sum of nested frequency has declined with every reading while grasses increased initially then declined slightly.

TREND ASSESSMENT
soil - stable (3)
browse - stable (3)
herbaceous understory - slightly down (2)

2001 TREND ASSESSMENT

Trend for soil continues to be stable. Litter cover increased slightly with percent bare ground decreasing to 12%. Trend for browse is slightly down. Density estimates for all three preferred browse species is slightly down. The number of seedlings and young declined considerably. Use is currently light to moderate with percent decadency slightly higher for both sagebrush species. Trend for the herbaceous understory is slightly down. Sum of nested frequency of perennial grasses and forbs continues to decline. Sum of nested frequency for bluebunch wheatgrass declined significantly since 1996, while frequency of Sandberg bluegrass remains stable. Sum of nested frequency of perennial forbs also declined and since 1984, sum of nested frequency for perennial forbs has declined with every reading.

TREND ASSESSMENT
soil - stable (3)
browse - slightly down (2)
herbaceous understory - slightly down (2)

HERBACEOUS TRENDS --
Herd unit 01 , Study no: 6

Type	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
G	Agropyron dasystachyum	$_{b}$35	$_{a}$7	$_{a}$10	$_{a}$17	15	2	3	6	.21	.37
G	Agropyron spicatum	$_{ab}$138	$_{c}$207	$_{b}$157	$_{a}$119	57	85	66	48	7.69	6.48
G	Bromus tectorum (a)	-	-	$_{a}$223	$_{b}$288	-	-	70	90	2.32	9.53
G	Elymus cinereus	$_{b}$12	$_{a}$2	$_{a}$4	$_{a}$2	6	1	2	1	.15	.38
G	Oryzopsis hymenoides	$_{a}$-	$_{ab}$1	$_{ab}$8	$_{b}$10	-	1	4	5	.09	.12
G	Poa secunda	$_{a}$54	$_{b}$145	$_{b}$145	$_{b}$161	22	60	56	65	3.32	4.40
G	Sitanion hystrix	$_{a}$-	$_{a}$-	$_{b}$16	$_{ab}$5	-	-	5	2	.24	.41
Total for Annual Grasses		0	0	223	288	0	0	70	90	2.32	9.53
Total for Perennial Grasses		239	362	340	314	100	149	136	127	11.71	12.18
Total for Grasses		239	362	563	602	100	149	206	217	14.04	21.72
F	Agoseris glauca	$_{a}$-	$_{b}$17	$_{a}$5	$_{a}$-	-	12	3	-	.01	-
F	Allium spp.	3	-	-	-	1	-	-	-	-	-
F	Arabis spp.	$_{a}$-	$_{ab}$10	$_{b}$24	$_{a}$-	-	6	11	-	.08	.00
F	Astragalus beckwithii	$_{ab}$16	$_{b}$32	$_{a}$7	$_{a}$6	7	15	5	4	.05	.09
F	Astragalus cibarius	$_{b}$24	$_{a}$-	$_{a}$2	$_{b}$33	14	-	1	16	.00	.23
F	Balsamorhiza sagittata	11	5	8	3	7	3	4	2	.87	.72
F	Caulanthus crassicaulis	-	4	-	-	-	2	-	-	-	-
F	Calochortus nuttallii	-	3	-	-	-	2	-	-	-	-
F	Collomia linearis (a)	-	-	11	17	-	-	4	9	.02	.12
F	Comandra pallida	-	4	5	9	-	2	3	4	.04	.10
F	Collinsia parviflora (a)	-	-	26	25	-	-	12	13	.06	.11

Type	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
F	Cordylanthus ramosus (a)	$_{b}$29	$_{a}$-	$_{a}$-	$_{b}$49	12	-	-	22	-	.23
F	Crepis acuminata	$_{c}$97	$_{b}$45	$_{a}$9	$_{ab}$21	46	24	4	12	.02	.56
F	Cryptantha spp.	$_{a}$-	$_{a}$-	$_{b}$18	$_{a}$-	-	-	7	-	.06	-
F	Delphinium nuttallianum	$_{b}$52	$_{a}$2	$_{a}$3	$_{a}$1	26	1	2	1	.01	.00
F	Descurainia pinnata (a)	-	-	-	4	-	-	-	1	-	.00
F	Eriogonum ovalifolium	-	-	-	2	-	-	-	1	-	.00
F	Erigeron pumilus	15	10	12	16	9	6	7	9	.09	.29
F	Galium aparine (a)	$_{b}$47	$_{a}$-	$_{a}$10	$_{a}$3	22	-	5	1	.17	.00
F	Gilia spp. (a)	-	-	-	8	-	-	-	4	-	.02
F	Hackelia patens	$_{a}$-	$_{c}$23	$_{bc}$17	$_{b}$7	-	12	8	5	.26	.10
F	Lappula occidentalis (a)	-	-	$_{a}$1	$_{b}$25	-	-	1	10	.00	.05
F	Lomatium spp.	6	-	-	3	3	-	-	3	-	.06
F	Lomatium triternatum	$_{b}$15	$_{a}$1	$_{a}$-	$_{a}$-	6	1	-	-	-	-
F	Microsteris gracilis (a)	-	-	$_{a}$3	$_{b}$63	-	-	1	28	.00	.16
F	Navarretia intertexta (a)	-	-	$_{b}$20	$_{a}$-	-	-	9	-	.04	-
F	Penstemon cyananthus	$_{a}$3	$_{b}$33	$_{c}$79	$_{a}$1	2	18	39	1	.43	.00
F	Phlox longifolia	$_{b}$128	$_{c}$172	$_{a}$57	$_{a}$78	48	72	28	32	.17	.58
F	Schoencrambe linifolia	-	-	-	5	-	-	-	2	-	.01
F	Senecio multilobatus	-	-	6	-	-	-	3	-	.06	-
F	Unknown forb-perennial	-	5	-	-	-	2	-	-	-	-
Total for Annual Forbs		76	0	71	194	34	0	32	88	0.30	0.72
Total for Perennial Forbs		370	366	252	185	169	178	125	92	2.17	2.78
Total for Forbs		446	366	323	379	203	178	157	180	2.48	3.50

Values with different subscript letters are significantly different at alpha = 0.10 (annuals excluded)

BROWSE TRENDS --
Herd unit 01 , Study no: 6

Type	Species	Strip Frequency '96	Strip Frequency '01	Average Cover % '96	Average Cover % '01
B	Artemisia nova	35	32	1.13	2.18
B	Artemisia tridentata tridentata	57	49	4.94	5.21
B	Chrysothamnus nauseosus consimilis	7	9	.36	.53
B	Chrysothamnus viscidiflorus viscidiflorus	8	10	.04	.59
B	Gutierrezia sarothrae	8	7	.04	.01
B	Juniperus osteosperma	3	6	4.12	3.54
B	Opuntia spp.	1	0	.00	-
B	Pinus monophylla	0	2	.38	.15
B	Purshia tridentata	9	8	1.57	1.25
Total for Browse		128	123	12.61	13.48

CANOPY COVER --
Herd unit 01 , Study no: 6

Point-Quarter Tree Data

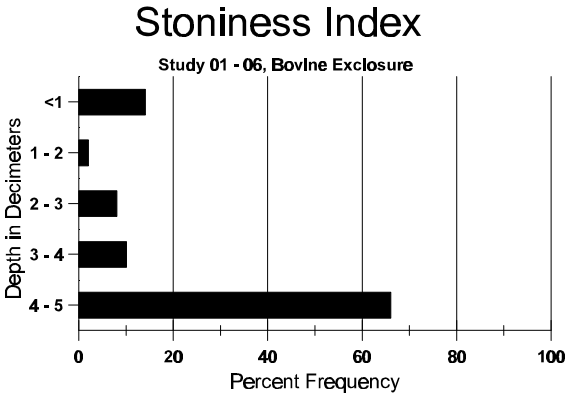
Species	Percent Cover '96	Percent Cover '01	Trees per Acre '96	Trees per Acre '01	Average diameter (in) '96	Average diameter (in) '01
Juniperus osteosperma	4	5	47	76	10.7	7.0
Pinus monophylla	2	3	8	49	5.3	2.1

BASIC COVER --
Herd unit 01 , Study no: 6

Cover Type	Nested Frequency '96	Nested Frequency '01	Average Cover % '84	Average Cover % '90	Average Cover % '96	Average Cover % '01
Vegetation	328	333	3.50	5.75	31.63	42.52
Rock	214	138	.75	1.00	13.21	11.49
Pavement	249	260	18.00	13.75	6.57	10.76
Litter	388	349	55.00	51.50	39.79	42.78
Cryptogams	102	96	2.00	1.75	1.90	2.28
Bare Ground	260	220	20.75	26.25	15.44	12.09

SOIL ANALYSIS DATA --
Herd Unit 01, Study no: 06, Bovine Exclosure

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
17.7	58.5 (17.4)	7.8	36.7	37.0	26.3	2.8	10.1	217.6	.5



PELLET GROUP FREQUENCY --
Herd unit 01 , Study no: 6

Type	Quadrat Frequency	
	'96	'01
Sheep	1	-
Rabbit	6	8
Deer	23	9

Pellet Transect	
Pellet Groups per Acre	Days Use per Acre (ha)
01	01
-	-
174	N/A
261	20 (50)

BROWSE CHARACTERISTICS --
Herd unit 01 , Study no: 6

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia nova																		
S	84	13	-	-	-	-	-	-	-	-	13	-	-	-	433			13
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	6	1	-	-	-	-	-	-	-	7	-	-	-	140			7
	01	2	1	-	-	-	-	-	-	-	3	-	-	-	60			3
M	84	2	-	-	-	-	-	-	-	-	1	-	1	-	66	10	12	2
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	33	10	9	1
	96	37	18	-	-	1	-	-	-	-	56	-	-	-	1120	10	18	56
	01	45	1	-	-	-	-	-	-	-	36	10	-	-	920	12	18	46
D	84	3	1	-	-	-	-	-	-	-	1	-	1	2	133			4
	90	4	-	-	-	-	-	-	-	-	4	-	-	-	133			4
	96	2	3	-	-	-	-	-	-	-	5	-	-	-	100			5
	01	11	1	-	-	-	-	-	-	-	10	1	-	1	240			12
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	420			21
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	560			28

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	17%	00%	67%	-17%
'90	00%	00%	00%	+88%
'96	34%	00%	00%	-10%
'01	05%	00%	02%	

Total Plants/Acre (excluding Dead & Seedlings)				
'84	199	Dec:	67%	
'90	166		80%	
'96	1360		7%	
'01	1220		20%	

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia tridentata tridentata																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	16	-	-	1	-	-	-	-	-	17	-	-	-	566			17
	96	5	-	-	-	-	-	-	-	-	5	-	-	-	100			5
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	84	4	-	-	-	-	-	-	-	-	4	-	-	-	133			4
	90	48	-	-	1	-	-	-	-	-	48	1	-	-	1633			49
	96	17	-	-	-	-	-	-	-	-	17	-	-	-	340			17
	01	5	-	-	-	-	-	-	-	-	5	-	-	-	100			5
M	84	8	3	2	-	-	-	-	-	-	10	-	1	2	433	15	11	13
	90	22	3	-	-	-	-	-	-	-	23	2	-	-	833	18	18	25
	96	45	10	-	1	-	-	1	-	-	57	-	-	-	1140	22	28	57
	01	51	10	-	-	-	-	-	-	-	57	4	-	-	1220	27	32	61
D	84	9	12	7	-	-	-	-	1	-	1	-	10	18	966			29
	90	19	2	-	1	-	-	-	-	-	18	1	1	2	733			22
	96	13	12	3	-	-	-	-	-	-	25	-	-	3	560			28
	01	26	2	1	-	-	-	-	-	-	21	-	-	8	580			29
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	1700			85
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	1520			76

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	33%	20%	67%	+52%
'90	05%	00%	03%	-36%
'96	22%	03%	03%	- 7%
'01	13%	01%	08%	

Total Plants/Acre (excluding Dead & Seedlings)				
'84	1532	Dec:		63%
'90	3199			23%
'96	2040			27%
'01	1900			31%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Chrysothamnus nauseosus consimilis																		
Y	84	1	-	-	-	-	-	-	-	-	1	-	-	-	33			1
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	4	-	-	-	-	-	-	-	-	2	-	2	-	80			4
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	5	-	-	-	-	-	-	-	-	5	-	-	-	100	20	21	5
	01	4	1	-	-	-	-	-	-	-	5	-	-	-	100	17	15	5
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	5	-	1	1	-	-	-	-	-	5	-	-	2	140			7

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	
'90	00%	00%	00%	
'96	00%	00%	22%	+25%
'01	08%	08%	17%	

Total Plants/Acre (excluding Dead & Seedlings)				
'84	33	Dec:		0%
'90	0			0%
'96	180			0%
'01	240			58%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Chrysothamnus viscidiflorus viscidiflorus																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
Y	84	2	-	-	-	-	-	-	-	-	2	-	-	-	66			2
	90	4	-	-	-	-	-	-	-	-	4	-	-	-	133			4
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
M	84	2	1	1	-	-	-	-	-	-	4	-	-	-	133	10	15	4
	90	4	2	-	1	-	-	-	-	-	7	-	-	-	233	11	15	7
	96	11	-	-	-	-	-	-	-	-	11	-	-	-	220	12	18	11
	01	10	-	-	-	-	-	-	-	-	10	-	-	-	200	13	24	10
D	84	1	-	-	-	-	-	-	-	-	1	-	-	-	33			1
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	33			1
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	1	3	-	3	-	-	-	-	-	4	-	-	3	140			7
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	100			5

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	14%	14%	00%	+42%
'90	17%	00%	00%	-45%
'96	00%	00%	00%	+42%
'01	16%	00%	16%	

Total Plants/Acre (excluding Dead & Seedlings)				
'84	232	Dec:		14%
'90	399			8%
'96	220			0%
'01	380			37%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Gutierrezia sarothrae																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	14	-	-	-	-	-	-	-	-	14	-	-	-	280			14
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	14	-	-	-	-	-	-	-	-	14	-	-	-	280			14
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	31	-	-	-	-	-	-	-	-	31	-	-	-	620	5	7	31
	01	26	-	-	-	-	-	-	-	-	26	-	-	-	520	4	7	26

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	
'90	00%	00%	00%	
'96	00%	00%	00%	-42%
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'84	0	Dec:	-
	'90	0		-
	'96	900		-
	'01	520		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Juniperus osteosperma																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	4	-	-	-	-	-	-	-	-	4	-	-	-	80			4
M	84	-	-	-	1	-	-	-	1	-	2	-	-	-	66	69	187	2
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	33	236	276	1
	96	3	-	-	-	-	-	-	-	-	3	-	-	-	60	-	-	3
	01	2	-	-	-	-	-	-	-	-	2	-	-	-	40	4	7	2
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	1	-	-	-	-	-	-	-	-	-	-	-	1	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	-50%
'90	00%	00%	00%	+45%
'96	00%	00%	00%	+57%
'01	00%	00%	14%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'84	66	Dec:	0%
	'90	33		0%
	'96	60		0%
	'01	140		14%

Opuntia spp.																		
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	33			1
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	84	4	-	-	-	-	-	-	-	-	4	-	-	-	133	4	8	4
	90	5	-	-	-	-	-	-	-	-	5	-	-	-	166	6	15	5
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	5	13	0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	+33%
'90	00%	00%	00%	-90%
'96	00%	00%	00%	
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'84	133	Dec:	-
	'90	199		-
	'96	20		-
	'01	0		-